

# Multipole Mixtures for $(2_{\gamma}^{+}-2_g^{+})$ Transitions in $N = 90-110$ Nonspherical Nuclei

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**Abstract**—The sign of the multipole-mixing ratio  $\delta$  for  $(2_{\gamma}^{+}-2_g^{+})$  transitions has been considered for nuclei where the number of neutrons is  $N = 90-110$ . In the majority of cases, a negative sign has been obtained for these transitions; it has also been found that  $\delta$  has identical signs for  $(2_{\gamma}^{+}-2_g^{+})$  and  $(4_{\gamma}^{+}-4_g^{+})$  transitions and the opposite signs for  $(2_{\gamma}^{+}-2_g^{+})$  and  $(2_{\beta}^{+}-2_g^{+})$  transitions. The existing exceptions to this rule are likely to be associated with the interaction of  $\beta$  and  $\gamma$  vibrational levels as their energies approach and with the contribution of the two-proton configuration  $pp\ 411\uparrow 411\downarrow$  to the  $2_{\gamma}^{+}$  level.